

Application 10/711,859  
Amendment dated July 27, 2009

Docket Number: 60052-0003

**Amendments to the Claims**

1. (Currently Amended) An endoscope comprising:

a shaft extending along a longitudinal axis, having a distal end receivable in a hollow organ and a proximal end and defining a hollow channel therethrough, the shaft including a steering mechanism for moving the distal end of the shaft from a first distal endoscope position to a second distal endoscope position;

a first lens selectively positioned ~~fixedly attached~~ adjacent to the distal end of the shaft for receiving a first image in a first direction, the first direction generally being forward and parallel to the longitudinal axis of the shaft and the first image generally being a circumferential view of the hollow organ;

a catheter receivable in the hollow channel of the shaft for extension and retraction therethrough, the catheter including a catheter distal end, a proximal section and a bending section interposed between the distal end and the proximal section, wherein the bending section selectively permits retroflexion of the distal end from a first position to a second position upon extension of the distal end of the catheter from the hollow channel; and

a second lens coupled to adjacent the distal end of the catheter and ~~being receivable in the hollow channel of the shaft~~, the second lens selectively positionable with the distal end of the shaft in the second position ~~movable in a second direction with respect to the first lens upon emerging from the hollow channel of the shaft and extending beyond the first lens~~ so as to receive a second image in a the second direction, the second direction being at a generally 180 degree angle to the first direction ~~and parallel to the longitudinal axis of the shaft~~ and the second lens being selectively independently advanced generally parallel to the axis relative to the first lens image providing a generally circumferential view of the hollow organ;

wherein:

~~the first and second images define overlapping forward and rear images of the same hollow organ, the second image being dependent on the first image; and~~

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~~the shaft is insertable into the hollow organ under image guidance of the first image and the steering mechanism of the shaft.~~

2. (Canceled)

3. (Previously Presented) The endoscope of claim 1, wherein the first and second lenses receive the first and second images simultaneously.

4-9. (Canceled)

10. (Previously Presented) The endoscope of claim 1, further comprising an actuator operatively connected to the catheter for moving the catheter independent of the shaft.

11. (Canceled)

12. (Previously Presented) The endoscope of claim 1, wherein the second lens is operatively connected to an image processor.

13. (Previously Presented) The endoscope of claim 1, further comprising a display screen for displaying the first and second images.

14. (Canceled)

15. (Currently Amended) The endoscope of claim 1, wherein ~~the catheter includes a distal tip and wherein~~ the endoscope further comprises one or more illumination bulbs disposed on the distal end tip of the catheter for illumination an area adjacent to the second lens.

16. (Previously Presented) The endoscope of claim 15, wherein the one or more illumination bulbs are operatively connected to a power source.

17-42 (Canceled)

43. (Currently Amended) The endoscope of claim 10, wherein ~~the catheter includes a distal tip and wherein~~ the actuator includes first and second actuation members wires operatively connected to the distal end tip of the catheter, and wherein forces exerted on the actuation members selectively urge the distal end to retroflex from the first position to the second position-  
~~tension on the first and second wires controls movement of the distal tip of the catheter.~~

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44. (Currently Amended) The endoscope of claim 10, wherein the actuator for the catheter includes a bending structure disposed at ~~a the~~ distal end of the catheter; ~~and wherein the bending structure urges the catheter in a second direction upon exit from the hollow channel of the shaft.~~

45-53 (Canceled)

54. (Currently Amended) An endoscope, comprising:

a first lens for selectively receiving a first image in a ~~fixed~~ first direction and the first image being a ~~generally circumferential view taken in~~ of the first direction;

a shaft having a distal end for fixedly receiving the first lens therein, the shaft having an axis defining a hollow channel therethrough and having a steering mechanism to deflect the distal end for, at least in part, guiding the shaft within an organ in at least four perpendicular directions;

a rear view module ~~second lens~~ for receiving a second image in a second direction, the second direction being at an angle generally 180 degrees to the first direction and the second image being a ~~generally circumferential view in~~ of the second direction, wherein the rear view module includes a second lens;

a catheter being reversibly received within the channel ~~of the shaft~~ and having proximal and distal ends and ~~a steering~~ an actuation mechanism; ~~and wherein the catheter is selectively advanced within the channel such that the rear view module is advanced generally along the axis relative to and independent of the first lens~~

~~a rear view module removably received in the hollow channel and housing the second lens operatively attached to the distal end of the catheter, the rear view module including a steering mechanism for moving the rear view module in the second direction upon exit from the hollow channel;~~

~~the shaft is insertable into the hollow channel under the image guidance of the first image and the steering mechanism of the shaft, independent of the steering mechanism of the catheter.~~

55. (Currently Amended) The endoscope of claim 54, wherein at least a portion of the rear view module is movable between a first position and a second position upon emerging from the hollow channel of the shaft.

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56. (Currently Amended) The endoscope of claim 55, ~~further comprising an actuator wherein the actuation mechanism is~~ operatively connected to the distal end of the catheter for controlling movement of the rear view module.

57. (Currently Amended) The endoscope of claim 56, wherein the ~~actuator~~ actuation mechanism includes first and second wires operatively connected to the distal end of the catheter, wherein ~~tension on the first and second wires controls movement of the second image lens forces exerted on the first and second wires~~ selectively urge the distal end to retroflex from the first position to the second position.

58-60. (Canceled)

61. (Previously Presented) The endoscope of claim 54, wherein the second lens is operatively connected to an image processor.

62. (Previously Presented) The endoscope of claim 54, further comprising a display screen operatively connected to the first and second lenses for displaying the first and second images.

63. (Previously Presented) The endoscope of claim 54, further comprising an eyepiece operatively connected to the first and second lenses for viewing the first and second images.

64. (Previously Presented) The endoscope of claim 54, further comprising one or more illumination bulbs for illuminating an area adjacent the second lens.

65. (Previously Presented) The endoscope of claim 64, wherein the one or more illumination bulbs are operatively connected to a power source.

66. (Currently Amended) The endoscope of claim ~~54~~ 55, wherein the rear view module is urged into the second position upon emergence from the hollow channel of the shaft by a flexible member disposed in the rear view module.

67. (Currently Amended) The endoscope of claim ~~10~~ 4, wherein the actuator includes a bending structure disposed in the catheter and wherein the bending structure urges the catheter into the second position ~~direction~~ upon exit from the hollow channel of the shaft.

68. (New) The endoscope of claim 43, wherein the actuation members are cables.

69. (New) The endoscope of claim 1, wherein the distal end of the catheter has a maximum outer dimension, measured perpendicular to the axis and taken from a predetermined view when



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the distal end is retroflexed, that is less than an outer dimension of the shaft, measured perpendicular to the axis and taken from the predetermined view.

70. (New) The endoscope of claim 54, wherein the distal end of the catheter has a maximum outer dimension, measured perpendicular to the axis and taken from a predetermined view when the distal end is retroflexed, that is less than an outer dimension of the shaft, measured perpendicular to the axis and taken from the predetermined view.

71. (New) The endoscope of claim 1, wherein the first lens provides a forward view and the second lens provides a rearward view relative to the forward view during movement of the distal end of the shaft through the organ.

72. (New) The endoscope of claim 54, wherein the first lens provides a forward view and the second lens provides a rearward view relative to the forward view during movement of the distal end of the shaft through the organ.

73. (New) The endoscope of claim 1, wherein the first lens, when receiving the first image in the first direction, cannot view tissue that can be viewed by the second lens when receiving the second image in the second direction.

74. (New) The endoscope of claim 54, wherein the first lens, when receiving the first image in the first direction, cannot view tissue that can be viewed by the rear view module when receiving the second image in the second direction.